CLAIM AMENDMENTS

Please amend the claims as follows:

1-38. (Cancelled)

39. (Currently Amended) A method of providing an indication of at least one of meat quality, pH levels, and stress levels in an animal, the method comprising:

~~a)~~ obtaining measurements corresponding to a body temperature of the animal at periodic sampling intervals over a predetermined time period;

determining an indication or measure of the extent of variation in said measurements as a whole over said time period; and

comparing said indication or measure of the extent of variation to a predetermined threshold.

~~b) applying an algorithm to the measurements obtained from a), which algorithm cumulatively takes account of variations in body temperature over time; and~~

~~c) comparing the results of the algorithm to a predetermined threshold.~~

40. (Previously Presented) A method of providing an indication of at least one of meat quality, pH levels, and stress levels in an animal, the method comprising:

a) obtaining measurements corresponding to a body temperature of the animal at periodic sampling intervals;

b) applying an algorithm to the measurements obtained from a), which algorithm cumulatively takes account of variations in body temperature over time; and

c) correlating the results of the algorithm with at least one of a meat tenderness, a pH, and a stress standard.

41. (Previously Presented) The method as claimed in claim 39 wherein ten or more measurements corresponding to body temperature are taken.

42. (Cancelled)

43. (Currently Amended) The method as claimed in claim ~~42~~ 39 wherein the predetermined time period is at least 12 hours.

44. (Currently Amended) The method as claimed in claim ~~42~~ 39 wherein the predetermined time period extends up to 24 hours.

45. (Currently Amended) The method as claimed in claim 39 wherein the indication or measure of the extent of variation ~~algorithm~~ is applied at a end of the predetermined time period.

46. (Cancelled)

47. (Currently Amended) The method as claimed in claim 39 wherein the ~~algorithm~~ indication or measure of the extend of variation is applied progressively.

48. (Currently Amended) The method as claimed in claim 47 wherein the ~~algorithm~~ indication or measure of the extent of variation is applied progressively as each measurement corresponding to body temperature is taken.

49. (Currently Amended) The method as claimed in claim 47 wherein ~~e)~~ said comparing is conducted after each application of the algorithm.

50. (Currently Amended) The method as claimed in claim 39 ~~wherein c) comprises comparing the results of the algorithm to a predetermined threshold and~~ further comprising, in the event of the threshold being exceeded, providing an indication of the threshold being exceeded.

51. (Original) The method as claimed in claim 50 further including setting the animal aside for a predetermined animal withholding period in the event of the threshold being exceeded.

52. (Currently Amended) The method as claimed in claim ~~47~~ 40 wherein a mean is calculated progressively as each measurement corresponding to temperature is taken.

53. (Currently Amended) The method as claimed in claim ~~47~~ 39 wherein the ~~algorithm~~ determining said indication or measure of the extent of variation comprises:

where:

t_{ear} is the instantaneous ear temperature;

$t_{ambient}$ is the instantaneous ambient air temperature;

d is the difference between ear and ambient temperatures;

fast is the fast-response filter element;

slow is the slow response filter element;

v is the integral of the difference between the two filter elements;

c_1 is the time constant of the fast filter;

c_2 is the time constant of the slow filter;

Time constants are such that $c_1 > c_2$, $0 < c_1 < 1, 0 < c_2 < 1$;

where initially:

$n=1$

$d_0 = t_{ear} - t_{ambient}$

$fast_0 = d_0$

$slow_0 = d_0$

$v_0 = 0$

and where at each sampling interval:

$d_n = t_{ear} - t_{ambient}$

$fast_n = (1-c_1) * fast_{n-1} + c_1 * d_n$

$slow_n = (1-c_2) * slow_{n-1} + c_2 * d_n$

then: $v_n = v_{n-1} + (fast_n - slow_n)$.

54. (Previously Presented) The method as claimed in claim 39 wherein the measurements are taken on the outer part of the animal's body.

55. (Previously Presented) The method as claimed in claim 54 wherein skin temperature measurements are taken and compensation is provided for at least ambient temperature or solar radiation.

56. (Original) The method as claimed in claim 54 wherein measurements are taken in the ear canal of the animal.

57. (Currently Amended) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor ~~having input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in the body temperature of the animal over time, wherein the processor has output means for providing the result of the algorithm~~ or controller configured to:

receive said measurements from said measurement device;

determine an indication or measure of the extent of variation in said measurements as a whole over said period;

compare said indication or measure of the extent of variation to a predetermined threshold to obtain a result; and

providing said result of said comparison as output.

58. (Currently Amended) The system as claimed in claim 57 wherein ~~the algorithm comprises the following~~ said processor further configured to:

determine the animal's mean body temperature from the measurements;

calculate the variance between each measurement and the mean; and

add all variances to obtain a cumulative variance score.

59. (Currently Amended) The system as claimed in claim 57 wherein ~~the algorithm comprises the following~~ the indication or measure of the extent of variation is determined:

where:

t_{ear} is the instantaneous ear temperature;

$t_{ambient}$ is the *instantaneous* ambient air temperature;

d is the *difference* between ear and ambient temperatures;

fast is the *fast*-response filter element;

slow is the slow *response* filter element;

v is the integral of *the* difference between the two filter elements;

c_1 is the time *constant* of the fast filter;

c_2 is the time *constant* of the slow filter;

Time constants are such that $c_1 > c_2$, $0 < c_1 < 1, 0 < c_2 < 1$;

where initially:

$n=1$

$d_0 = t_{ear} - t_{ambient}$

$fast_0 = d_0$

$slow_0 = d_0$

$v_0 = 0$

and where at each sampling interval:

$d_n = t_{ear} - t_{ambient}$

$fast_n = (1-c_1)*fast_{n-1} + c_1*d_n$

$slow_n = (1-c_2)*slow_{n-1} + c_2*d_n$

then: $v_n = v_{n-1} + (fast_n - slow_n)$.

60. (Previously Presented) The system as claimed in claim 57 wherein the system is embodied in an all-in-one indicator device.

61. (Original) The system as claimed in claim 60 wherein the device is provided in the form of an ear tag.

62. (Original) The system as claimed in claim 61 wherein the tag incorporates the measurement device.

63. (Previously Presented) The system as claimed in claim 57, wherein the processor is provided by way of a remote computer.

64. (Previously Presented) The system as claimed in claim 57 wherein the processor is adapted to output a numeric value from a comparison with a meat tenderness scale.

65. (Previously Presented) The system as claimed in claim 57 wherein the processor is operable to compare the output of the algorithm to a predetermined threshold.

66. (Original) The system as claimed in claim 65 further including an indicator to indicate where the output of the algorithm has exceeded the predetermined threshold.

67. (Original) The system as claimed in claim 66 wherein the indicator is also operable to provide an indication that the system is functioning.

68-88. (Cancelled)

89. (Original) A temperature sensing device comprising:

a tag having an attachment portion to extend through a body part of an animal~~, the tag incorporating an indicator~~; ~~and~~

one or more animal temperature sensors disposed on/in the attachment portion for contact with the animal during use and providing an output indicative of temperature; and

an indicator mounted on the tag or incorporated therewith and communicating with the one or more animal temperature sensors, said indicator being configured to provide a local indication depending on said output from said one or more animal temperature sensors.

90. (Original) The tag as claimed in claim 89 wherein the tag is an ear tag.

91. (Original) The tag as claimed in claim 89 wherein an ambient temperature sensor is also provided on the tag.

92. (Original) The tag as claimed in claim 89 wherein comparison means is provided for comparing the ambient temperature with the animal temperature.

93. (Original) The tag as claimed in claim 92 wherein the indicator is disposed on the tag, the indicator being responsive to the comparison means.

94. (Original) The tag as claimed in claim 89 wherein the tag comprises a one piece molded body.

95. (New) method of providing an indication of at least one of meat quality, pH levels, and stress levels in an animal, the method comprising:

obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals;

determining that animal's mean body temperature reading over the predetermined time period;

calculating the variance between each measurement and the mean determined; and

adding all variances to obtain a cumulative temperature variance score,

comparing said score to a predetermined threshold.

96. (New) The method as claimed in claim 95 wherein the variance is calculated progressively.

97. (New) The method as claimed in claim 96 wherein the variance is calculated progressively as each measurement corresponding to body temperature is taken.

98. (New) The method as claimed in claims 96 or 97 wherein the comparison is conducted after each application of the algorithm.

99. (New) A method of providing an indication of at least one of meat quality, pH levels, and stress levels in an animal, the method comprising:

obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals;

calculating progressively a mean as each measurement corresponding to temperature is taken;

applying an algorithm to the measurements which cumulatively takes account of variations in body temperature over time; and

comparing the results of said algorithm to a predetermined threshold.

100. (New) A method of providing an indication of at least one of meat quality, pH levels, and stress levels in an animal, the method comprising:

obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals;

applying an algorithm where:

t_{ear} is the instantaneous ear temperature;

$t_{ambient}$ is the instantaneous ambient air temperature;

d is the difference between ear and ambient temperatures;

fast is the fast-response filter element;

slow is the slow response filter element;

v is the integral of the difference between the two filter elements;

c_1 is the time constant of the fast filter;

c_2 is the time constant of the slow filter;

Time constants are such that $c_1 > c_2$, $0 < c_1 < 1$, $0 < c_2 < 1$;

where initially:

$n=1$

$d_0 = t_{ear} - t_{ambient}$

$fast_0 = d_0$

$slow_0 = d_0$

$v_0 = 0$

and where at each sampling interval:

$d_n = t_{ear} - t_{ambient}$

$fast_n = (1-c_1)*fast_{n-1} + c_1*d_n$

$slow_n = (1-c_2)*slow_{n-1} + c_2*d_n$

then: $v_n = v_{n-1} + (fast_n - slow_n)$; and

comparing v_n to a predetermined threshold.

101. (New) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor having an input means for receiving the measurements from the measurement device, the processor operable to:

determine the animal's mean body temperature from the measurements;

calculate the variance between each measurement and the mean; and

add all variances to obtain a cumulative variance score;

wherein the processor has an output means for providing the cumulative variance score.

102. (New) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm where:

t_{ear} is the instantaneous ear temperature;

$t_{ambient}$ is the instantaneous ambient air temperature;

d is the difference between ear and ambient temperatures;

fast is the fast-response filter element;

slow is the slow response filter element;

v is the integral of the difference between the two filter elements;

c_1 is the time constant of the fast filter;

c_2 is the time constant of the slow filter;

Time constants are such that $c_1 > c_2$, $0 < c_1 < 1$, $0 < c_2 < 1$;

where initially:

$n=1$

$d_0 = t_{ear} - t_{ambient}$

$fast_0 = d_0$

$slow_0 = d_0$

$v_0 = 0$

and where at each sampling interval:

$$d_n = t_{ear} - t_{ambient}$$

$$fast_n = (1-c_1)*fast_{n-1} + c_1*d_n$$

$$slow_n = (1-c_2)*slow_{n-1} + c_2*d_n$$

then: $v_n = v_{n-1} + (fast_n - slow_n)$.

wherein the processor has an output means for providing the result v_n.

103. (New) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in body temperature over a time window, wherein the processor has an output means for providing the result of the algorithm;

wherein the system is embodied in an all-in-one indicator device.

104. (New) The system as claimed in claim 103 wherein the device is provided in the form of an ear tag.

105. (New) The system as claimed in claim 104 wherein the tag incorporates the measurement device.

106. (New) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in body temperature over a time window, wherein the processor has an output adapted to output a numeric value result of the algorithm from a comparison with a meat tenderness scale.

107. (New) A system for providing an indication of at least one of meat quality, pH levels, and stress levels in an animal to be slaughtered, the system comprising:

a body mountable measurement device for obtaining measurements corresponding to the body temperature of the animal at periodic sampling intervals over a period of between 3-36 hours; and

a processor having an input means for receiving the measurements from the measurement device, the processor operable to implement an algorithm to the measurements, which algorithm cumulatively takes account of variations in body temperature over a time window, and operable to compare the output of the algorithm to a predetermined threshold wherein the processor has an output means for providing the result of the algorithm;

an indicator to indicate where the output of the algorithm has exceeded the predetermined threshold and provide an indication that the system is functioning.

108. (New) A temperature sensing device including:

a tag having an attachment portion to extend through a body part of an animal, the tag incorporating an indicator means;

one or more animal temperature sensors disposed on/in the attachment portion for contact with the animal during use;

an ambient temperature sensor provided on the tag;

comparison means is provided to compare the ambient temperature with the animal temperature;

an indicator is disposed on the tag, the indicator being responsive to the comparison means.